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SHAREABLE RESOURCE

The Safe and Proper Use of Treadmills

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Using a treadmill is an excellent way to achieve fitness goals, and treadmills remain one of the most popular exercise tools. In 2020 it was estimated that nearly 50 million Americans used treadmills, and it is a number that continues to grow (1). Their popularity stems from their convenience, adaptability, and ability to provide effective workouts for people of all fitness levels.

From a physiologic perspective, treadmill use results in greater caloric expenditures due to larger muscle mass used in comparison with upper body ergometry and stationary cycling (2). Treadmill walking mimics our activities of daily living (ADLs) and can be effective in maintaining and improving cardiorespiratory fitness, gait, balance, and muscular endurance.

Treadmills also account for thousands of injuries each year. Common causes include improper use, distractions, falls, and incorrect machine setting (3). Education and caution are essential to ensure safe usage and maximize benefits.

GENERAL CONSIDERATIONS FOR TREADMILL USE

1. **Understand and Respect the Equipment:** If you're using a treadmill at a gym, ask a qualified exercise professional for a brief tutorial. Each treadmill model varies slightly, and a short walkthrough can significantly enhance safety. Respecting the way the equipment is intended to be used is vital to your success (avoid backward walking, side stepping, dancing, bear crawling, and other unintended uses unless you are with a qualified exercise or allied health professional who is working with you on a specific goal). If you own a treadmill, read the manual or watch instructional videos before use.
2. **The most important control:** Familiarize yourself with the treadmill's emergency stop button and practice using it. Many treadmills also have a safety tether that clips to your clothing; if you drift too far back, the tether activates an "emergency stop switch" resulting in immediate cessation of the treadmill belt. Using this feature can prevent serious injury.
3. **Avoid Distractions:** Treadmill accidents often occur due to distractions, such as using technology (*i.e.*, checking phones or adjusting headphones). Focus on your workout and avoid multitasking to stay safe.
4. **Start Slowly and Stop Gradually:** According to the American College of Sports Medicine (ACSM), warming-up and cooling-down at a slow pace helps stabilize heart rate and breathing, reducing dizziness or instability. When using a treadmill, try to incorporate warm-up techniques by walking at a slow speed to acclimate safely and reduce the risk of falls. Some treadmills offer a feature that allows the user to accelerate quickly to a run. If you inadvertently press this button, it could result in loss of control as the treadmill advances speed beyond your comfort zone. Be mindful of which controls you choose. New users and those who are hesitant about walking on a treadmill may prefer straddling the belt to begin their workout. This allows the user to get used to the belt movement and speed before stepping on it. Straddling the belt is also helpful if the user feels "out of control" and can't reach the control console quickly. This is also useful in the event of a mechanical issue (*e.g.*, treadmill is making odd noises or shaking). To employ a cool-down at the end of your workout gradually reduce speed, and then press the stop button. Wait for the belt to stop completely before stepping off the machine.
5. **Light touch:** If you are uncomfortable with the feel of walking or running on a treadmill or need to regain balance, maintain a light finger touch on the front or side handrails of the machine. To start you can use one or both hands and as you become more comfortable with the treadmill, try not to hold on at all. Avoid holding the front rail tightly and locking your arms as this can reduce the workload intensity you are trying to achieve. Side handrails can be used when starting or stopping. Avoid dependency on side rails during your workout, as this can compromise posture and balance and can lead to muscular imbalances.
6. **Ensure Proper Set-up and Maintenance:** Treadmills need at least 6 to 8 feet of space behind them to minimize injury in case of a fall (4). Regular maintenance, such as wiping sweat from the console after each use, is a best practice. Commercial operators should be maintaining the treadmill based on manufacturer's guidelines. If you have a treadmill at home, follow the manufacturer's maintenance recommendations or consult with a certified repair technician.

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OPTIMIZING YOUR TREADMILL WORKOUT

1. **Incorporate Incline and Speed Variations:** Adjusting the incline mimics uphill walking and will engage different muscle groups, increase workload intensity, and expend more calories. Some models also provide a downhill option that should be used with caution as this will result in an eccentric load and may result in more severe muscle soreness versus flat or uphill walking. Gradual increases in incline build strength without excessive joint strain. Combine speed and incline for a comprehensive workout. Be sure you are able to maintain a light touch as speed and incline increases. If you are holding the front rail tightly, chances are the speed or incline should be reduced.
2. **Try Interval Training:** Interval training alternates between high and low intensity, maximizing caloric expenditure and improving cardiovascular fitness. It's also effective for increasing energy expenditure, even after your workout ends (5).
3. **Monitor Heart Rate and Breathing:** Many treadmills have heart rate monitors to gauge intensity. The National Institutes of Health (NIH) recommends maintaining your heart rate within 50% to 85% of your maximum heart rate for optimal cardiovascular benefits for continuous exercise. For interval or high-intensity interval training (HIIT), your heart rate can exceed 85% as you will be exercising for shorter durations and at higher intensities (6).
4. **Vary Your Routine:** Avoid repetitive stress or overuse injuries by alternating treadmill routines—try speed-focused runs, incline walks, or slower sessions. ACSM encourages cross-training with other activities, such as cycling or strength training, to balance muscle development and prevent overuse injuries (5).
5. **Cool-Down and Stretch:** End each session with a 5-minute cool-down walk and stretching to improve flexibility and aid muscle recovery. ACSM emphasizes the importance of proper cool-downs to prevent muscle tightness and support cardiovascular recovery (5).

Treadmills are valuable tools for fitness when used safely and effectively. By following these best practices, you can enjoy safe and successful workouts that contribute to your fitness goals.

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